

10-03-07

AF/IAK
BRINKS
HOFER
GILSON
& LIONE

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail (BM 091104365 US), with sufficient postage, in an envelope addressed to: Mail Stop Appeal Brief - Patents, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on the below date:
Date: October 2, 2007 Name: Amir N. Penn Signature:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Toshio Mikiya, et al.

Appln. No.: 10/808,067

Filed: March 24, 2004

For: PIPE COUPLER

Attorney Docket No: 10210/10

Examiner: Dunwoody, Aaron M.

Art Unit: 3679

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

Sir:

Attached are:

- ☒ Transmittal (1 pg)(in duplicate); Supplemental Appeal Brief in Response to Office Communication dated August 31, 2007 (19 pgs); Petition and Fee for One Month Extension of Time (2 pgs)(in duplicate); and
- ☒ Return Receipt Postcard.

Fee calculation:

- ☐ No additional fee is required.
- ☐ Small Entity.
- ☒ An extension fee in an amount of \$120.00 for a one -month extension of time under 37 C.F.R. § 1.136(a) which should be charged to Deposit Account No. 23-1925.
- ☐ A petition or processing fee in an amount of \$_____ under 37 CFR §41.37 and §41.20(b)(2).
- ☐ An additional filing fee has been calculated as shown below:

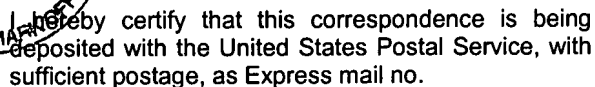
| | | | | | Small Entity | | | Not a Small Entity | |
|---|----------------------------------|-------|---------------------------------|---------------|--------------|-----------|----|--------------------|-----------|
| | Claims Remaining After Amendment | | Highest No. Previously Paid For | Present Extra | Rate | Add'l Fee | or | Rate | Add'l Fee |
| Total | | Minus | | 0 | X \$25= | | | x \$50= | |
| Indep. | | Minus | | 0 | X 100= | | | x \$200= | |
| First Presentation of Multiple Dep. Claim | | | | | +\$180= | | | +\$360= | |
| | | | | | Total | \$ | | Total | \$ |

- ☐ A check in the amount of \$_____ to cover the filing fee is enclosed.
- ☒ Please charge Deposit Account No. 23-1925 in the amount of \$120.00. A copy of this Transmittal is enclosed for this purpose.
- ☐ Payment by credit card in the amount of \$_____ (Form PTO-2038 is attached).
- ☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

October 2, 2007
Date

Amir N. Penn (Reg. No. 40,767)



Related Appeals and Interferences

Appellant does not know of any related appeals or interferences.

Status of Claims

1. Claims 1-2 and 4-6 are cancelled.
2. Claims 3 and 11 are withdrawn.
3. Claims 7-10 and 12 are pending and stand finally rejected.
6. Claims 7-10 and 12 are appealed.

Status of Amendments

All amendments have been entered.

Summary of Claimed Subject Matter

Appellant's invention relates to a pipe coupler used for transferring fluid, such as liquefied hydrogen. Paragraph [0005] (pg. 2, lines 16-18);¹ paragraph [0065] (pg. 8, lines 26-28). Liquefied hydrogen is stored under high pressure, such as at a pressure of 30 Mpa or more. Paragraph [0003] (pg. 1, lines 14-15). A female coupler is used to transfer the liquefied hydrogen and should have sufficiently strong construction to withstand the high pressure. Paragraph [0003] (pg. 1, lines 15-17). Because of this strong construction requirement, female couplers typically are both bulky and heavy, making it difficult for the coupler to be used to transfer the liquefied hydrogen by a driver or an attendant at a gas station. Paragraph [0003] (pg. 1, lines 17-20).

Further, conventional female couplers are designed such that, when a male coupler has been adequately inserted into a tubular body of the female coupler, a sleeve slidably mounted on the tubular body is moved to a locking position, forcing locking balls on the tubular body into an annular groove on the male coupler, thereby securely hold the male coupler within the female coupler. Paragraph [0004] (pg. 1, lines 18-23). However, with this design, there is a danger that the male coupler may suddenly become disengaged and move out from the female coupler before the annular

¹ For ease of reference, Applicants cite to the original application with both the paragraph numbers and to the page/line numbers.

groove on the male coupler reaches a position to receive the locking balls on the female coupler. Paragraph [0004] (pg. 1, lines 24-26).

In the claimed embodiments, a female coupler is provided suitable for use in the transfer of high pressure fluid, such as liquefied hydrogen. Independent claim 7 recites a female coupler adapted to be connected to a male coupler. One example of a female coupler 1 and a male coupler 2 is depicted in Figures 1, 2, 5 and 6. The female coupler includes a coupler body having a cylindrical male coupler receiving portion adapted to receive a male coupler therein. One example of a coupler body includes a tubular coupler body 3 and a tubular fitting 14 and a tubular member 20 which are threadably engaged with the tubular coupler body 3. Paragraph [0067] (pg. 9, lines 4-9), paragraphs [0069]-[0071] (pg. 9, line 23 – pg. 10, line 7). The coupler body may include a fluid passage, such as internal bore 4, to be fluidly communicated with a fluid passage of the male coupler, such as internal bore 65. Paragraphs [0067]-[0068] (pg. 9, lines 4-16); see also Figures 1, 2, 5 and 6. The cylindrical male coupler receiving portion may have a radial hole, such as radial holes 23 extending through the tubular member 20 and a sleeve 24 mounted on the tubular member 20. Paragraph [0072] (pg. 10, lines 8-17).

The female coupler may further include a locking member, such as locking balls 22, disposed in the radial hole, with the locking member movable between an engagement position and a disengagement position. Figures 4-6 depict the engagement position wherein the locking member, such as locking balls 22, engages with a locking member receiving recess, such as annular recess 64, formed on the outer surface of the male coupler. Paragraph [0066] (pg. 9, lines 1-3); paragraph [0078] (pg. 12, lines 3-16). The locking member has thus been inserted into the cylindrical male coupler receiving portion to thereby prevent the male coupler from being disengaged or moving out from the cylindrical male coupler receiving portion. Paragraph [0066] (pg. 9, lines 1-3); paragraph [0078] (pg. 12, lines 3-16). Figures 1 and 3 depict the disengagement position wherein the locking member is positioned radially outwardly relative to the engagement position and disengages from the locking member receiving recess of the male coupler to thereby allow the male coupler to move out from the

cylindrical male coupler receiving portion. See also paragraph [0079] (pg. 12, lines 17-28).

The female coupler further may include an outer movable member, such as sleeve 24, mounted on the cylindrical male coupler receiving portion, with the outer movable member being axially movable between a locking position and an unlocking position. Paragraphs [0008]-[0010] (pg. 2, line 21 – pg. 3, line 4); paragraph [0072] (pg. 10, lines 8-17). In the locking position, the outer movable member urges the locking member to the engagement position. Paragraph [0072] (pg. 10, lines 10-14). In the unlocking position, the outer movable member allows the locking member to move to the disengagement position. Paragraph [0072] (pg. 10, lines 10-14).

The female coupler also may include a handle, such as handle 43, fixedly connected to the outer movable member. The handle may enable an operator to hold the female coupler by grasping the handle in order to couple the female coupler with the male coupler. Paragraphs [0077]-[0078] (pg. 11, line 29 – pg. 12, line 16).

The female coupler may further include a holding member, such as sleeve holding mechanism 29 that includes holding balls 30, for engaging with and holding the outer movable member to the unlocking position. See Figures 1 and 3; see also paragraphs [0074]-[0075] (pg. 10, line 27 – pg. 11, line 15). The holding member may be disengaged from the outer movable member to allow the outer movable member to move to the locking position when the male coupler has been inserted into the cylindrical male coupler receiving portion and reached a position wherein the locking member receiving recess of the coupler body is located at an axial position for receiving the locking member. See Figures 4-6; see also paragraph [0078] (pg. 12, lines 3-16).

The cylindrical male coupler receiving portion may be engaged by and prevented by the male coupler from effecting a further advancement when the male coupler has been inserted into the cylindrical male coupler receiving portion upon advancement of the female coupler towards the male coupler and reached a position wherein the locking member receiving recess, such as annular groove 64, is located at an axial position for receiving the locking member, such as locking balls 22. Paragraph [0078] (pg. 12, lines 6-13).

Grounds of Rejection to be Reviewed on Appeal

1. Whether claims 7-10 are anticipated under 35 U.S.C. §102(b) by Rogers (U.S. Pat. No. 4,592,387).

2. Whether claims 7-10 and 12 are anticipated under 35 U.S.C. §102(b) by Hobson et al. (U.S. Pat. No. 4,074,698).

The arguments below group the claims as follows:

Group 1: Claims 7-10 and 12 rejected under 35 U.S.C. §102(b).

Argument

Appellant submits that the pending rejections fail to cite references teaching or suggesting all of the claimed features.

A. Ground 1

Appellant submits that the rejection of claims 7-10 as anticipated under 35 U.S.C. §102(b) by Rogers (U.S. Pat. No. 4,592,387) should be withdrawn.

Claim 7:

Claim 7 stands rejected under 35 U.S.C. §102(b) as anticipated by U.S. Pat. No. 4,592,387 ("Rogers"). Appellant appeals the rejection of Claim 7 because Rogers does not teach or suggest the limitations of Claim 7. As discussed above, claim 7 relates to a female coupler adapted to be connected to a male coupler.

The female coupler claimed in claim 7 includes, *inter alia*:

(1) "a coupler body having a cylindrical male coupler receiving portion with a radial hole adapted to receive the male coupler therein";

(2) "a locking member disposed in said radial hole and movable between an engagement position . . . and a disengagement position";

(3) "an outer movable member mounted on said cylindrical male coupler receiving portion and movable between a locking position . . . and an unlocking position"; and

(4) "a handle fixedly connected to said outer movable member", and

(5) "a holding member for engaging with and holding said outer movable member to said unlocking position",

with "said cylindrical male coupler receiving portion being engaged by and prevented by the male coupler from effecting a further advancement when the male coupler has been inserted into the cylindrical male couple receiving portion upon advancement of said female coupler towards the male coupler".

Claim 1 distinguishes over Rogers in that Rogers fails to teach the holding member and fails to teach the combination of the holding member with the claimed handle. The holding member engages with and holds the outer movable member in the unlocking position, thereby preventing the outer movable member from locking prematurely and blocking the insertion the female coupler with the male coupler. After the male coupler has been inserted into the cylindrical male coupler receiving portion and reached a position wherein the locking member receiving recess is located at an axial position for receiving the locking member, the holding member is disengaged from the outer movable member to allow the outer movable member to move to the locking position to thereby complete the secure connection of the male and female couplers. Moreover, the combination of the holding member and the handle enable an operator to connect the female coupler to the male coupler simply by holding the female coupler and advancing it toward the male coupler.

In rejecting claim 7 based on Rogers, the Examiner only cites Figures 2-5 of Rogers. The Examiner provides no other citation to Rogers. Figure 5 of Rogers is reproduced below:

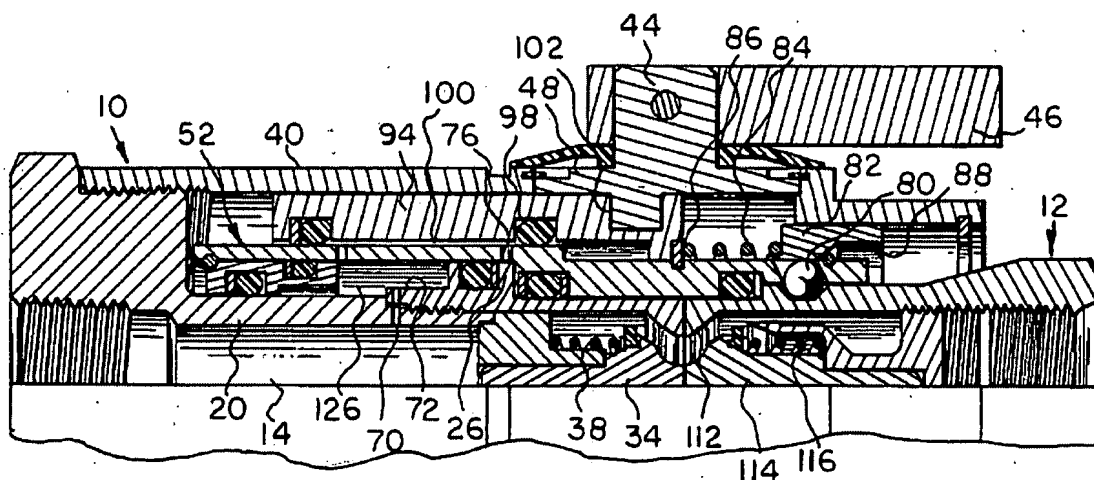


FIG 5

Rogers fails to teach a holding member for engaging with and holding the outer movable member to the unlocking position. As discussed in the present application, the holding member holds the sleeve until the male coupler is inserted into the female coupler and a locking ball receiving recess formed in the exterior surface thereof is brought into a position for receiving the locking balls therein. Accordingly, the sleeve is prevented from moving to a position for forcing the locking ball into the locking ball receiving recess even if the male coupler is suddenly moved out from the female coupler, which as discussed above is a problem that can occur in prior art female couplers. Abstract; see also paragraph [0074] (pg. 12, line 27 – pg. 13, line 2). Rogers wholly fails to teach or even suggest any holding member, thus suffering from the same drawbacks in the prior art. Rogers teaches that the female part 10 is coupled to the male part 12 when the ball detents 80 engage the detect actuator 82. See col. 5, lines 31-37; see also Figs. 2-5. However, Rogers fails to disclose any holding member that prevents engagement of the ball detents 80 with the detect actuator 82 prior to insertion of the female part 10 into the male part 12.

Appellant argued to the Examiner that Rogers failed to disclose any holding member. In response, the Examiner only states that "In Figures 2-5 of Rogers . . . , the securing or holding element is clearly illustrated." The Examiner does not provide any additional support. Appellant thus contends that the holding member, which recites holding the outer movable member to the unlocking position and recites disengaging

from the outer movable member to allow the outer movable member to move to the locking position when the male coupler has been inserted into the cylindrical male coupler receiving portion and reached a position wherein the locking member receiving recess is located at an axial position for receiving said locking member, is not taught or suggested by Rogers.

Rogers also fails to disclose "a handle fixedly connected to said outer movable member". The Examiner states that Rogers discloses operating handle 46 that is fixedly connected to the outer movable member. However, operating handle 46 is not fixedly connected to sleeve 52, or any other element that may be considered to be the outer movable member. Therefore, Rogers fails to teach, or even suggest any handle working in combination with the holding member (discussed above) to engage the female coupler with the male coupler, as discussed in the following excerpt from the present application:

During operation, an operator grips the handles 43 by hand to hold the female coupler 1; then, as shown in FIG. 1, manipulates the female coupler 1 to align it with the male coupler 2, and advances the same towards the male coupler 2, or rightwards as viewed in FIG. 1. In this operation, when the annular groove 64 of the male coupler 2 has been brought into a position wherein the locking balls 22 can move into the annular groove 64, the holding balls 30 can move radially inwardly and disengage from the annular groove 32 and, substantially simultaneously, a right side surface defining the annular groove 64 is engaged by an annular step portion formed on the interior surface of the tubular member 20 to prevent further advancement of the tubular coupler body 3 towards the male coupler 2.

Paragraph [0078] (pg. 12, lines 3-16). As discussed above, the combination of the handle and the holding member enables easier coupling of the female coupler to the male coupler. Specifically, the operator may merely grip the handle on the female coupler and advance it toward the male coupler. Accordingly, Appellant respectfully requests the rejection of claim 7 based on Rogers to be withdrawn.

Claim 8:

In addition to possessing the features of independent claim 7, claim 8 recites an inner movable member, such as inner tubular member 27, disposed in the cylindrical male coupler receiving portion, with the inner movable member being axially movable

between an advanced position and a retracted position. In the advanced position, the inner movable member engages with the locking member to hold the locking member in the disengagement position. See Figure 1; see also paragraphs [0073]-[0075] (pg. 10, line 18 – pg. 11, line 15). In the retracted position, the locking member is allowed to move to the engagement position. See Figures 5-6; see also paragraphs [0073]-[0075] (pg. 10, line 18 – pg. 11, line 15). The present application describes the operation of inner tubular member 27 as follows:

Inside the tubular member 20, there is provided an inner tubular member 27 which is axially movable between an advanced position (FIG. 1) wherein the inner tubular member prevents the locking balls 22 from moving into the internal bore of the tubular member 20, and a retracted position (FIG. 5) wherein the inner tubular member 27 allows the locking balls 22 to partly project into the internal bore of the tubular member 20. The inner tubular member 27 is urged by a coil spring 28 to the advanced position, and can be moved against the coil spring 28 by the male coupler 2 which will be inserted into the internal bore of the tubular member 20 for connection with the female coupler.

Paragraph [0073] (pg. 10, lines 18-26). The Examiner merely cites Figures 2-5 of Rogers as teaching every limitation in claim 8. However, Rogers does not disclose or suggest the inner movable member, axially movable between an advanced position (that engages with the locking member to hold the locking member in the disengagement position) and a retracted position (that allows the locking member to move to the engagement position). Accordingly, Appellant respectfully requests the rejection of claim 8 based on Rogers to be withdrawn.

Claim 9:

In addition to possessing the features of independent claim 7 and dependent claim 8, claim 9 recites that the outer movable member is: (1) cylindrical and coaxial with the cylindrical male coupler receiving portion; and (2) has an interior surface slidably engaged with an exterior surface of the cylindrical male coupler receiving portion, with the interior surface having a locking portion urging the locking member to the engagement position when the outer movable member is located at the locking position and a recess for receiving the locking member when the outer movable member is located at the unlocking position. Paragraph [0049] (pg. 7, lines 1-7); paragraph [0075] (pg. 11, lines 3-10). One example of the recess for receiving the

locking member is shown as annular groove 32 formed on the interior surface of sleeve 24.

Again, the Examiner merely cites Figures 2-5 of Rogers as teaching every limitation in claim 9. However, Rogers fails to teach any recess, such as annular groove 32, on any sleeve, that receives any locking member when the sleeve is located in the unlocking position. For example, sleeve 52 in Rogers is described as follows:

The sleeve 52 is provided with offset radial surfaces 62 and 64 in opposed axial relation to the shoulder face 28 and extension face 66, respectively, and the sleeve also includes annular radial surface 68 in axial opposed relation to the shoulder face 30. Passage 70 establishes communication between the female part passage 14 and the exterior surface 72 of the extension 18, and radial passage 74 communicates with surface 62 and the outer cylindrical diameter of the sleeve 52. Likewise, radial passage 76 communicates with the sleeve radial surface 68 and the outer diameter 78 of the sleeve.

Col. 5, lines 12-22. As is clear from the excerpt, sleeve 52 does not include any recess or groove that receives any locking member when the sleeve is located in the unlocking position. Accordingly, Appellant respectfully requests the rejection of claim 9 based on Rogers to be withdrawn.

Claim 10:

In addition to possessing the features of independent claim 7, claim 10 further recites an inner movable member and a first urging member. The inner movable member is "disposed in said cylindrical male coupler receiving portion, said inner movable member being axially movable between a retracted position . . . and, an advanced position" In the retracted position, the "inner movable member has been moved rearwards by the male coupler which has been inserted into said cylindrical male coupler receiving portion so that said locking member receiving recess thereof has been moved to an axial position for receiving said locking member therein." In the advanced position, the inner movable member is "closer to said locking member than said retracted position." One example of an inner movable member disclosed in the present application is inner tubular member 27. The "inner tubular member 27 which is axially movable between an advanced position (FIG. 1) . . . [preventing] the locking balls 22 from moving into the internal bore of the tubular member 20, and a retracted position

(FIG. 5) wherein the inner tubular member 27 allows the locking balls 22 to partly project into the internal bore of the tubular member 20.” Paragraph [0073] (pg. 10, lines 18-23).

The inner movable member also “urg[es] said securing member radially outwards to make the securing member engaged with and securing said outer movable member at said unlocking position, and allowing said outer movable member 24 to move to said locking position when said inner movable member has been moved to said retracted position by the male coupler”. Paragraph [0055] (pg. 7, lines 20-24). One example of the inner movable member urging the securing member is disclosed in the following excerpt:

The inner tubular member 27 has a large diameter portion 33 which engages with the holding balls 30 to position them at the radially outward position, when the inner tubular member 27 is positioned at the advanced position; and, has a small diameter portion 34 for allowing the holding balls 30 to move to the radially inward position when the inner tubular member 27 is moved to the retracted position.

Paragraph [0075] (pg. 11, lines 10-15).

Claim 10 further recites that the first urging member is “for urging said inner movable member towards said advanced position.” One example of the first urging member disclosed in the specification is coil spring 28. Paragraph [0073] (pg. 10, lines 23-26).

Again, the Examiner merely cites Figures 2-5 of Rogers as teaching every limitation in claim 10. However, there is no element in Rogers that discloses an inner movable member movable between a retracted position (that receives the locking member) and an advanced position. Accordingly, Appellant respectfully requests the rejection of claim 10 based on Rogers to be withdrawn.

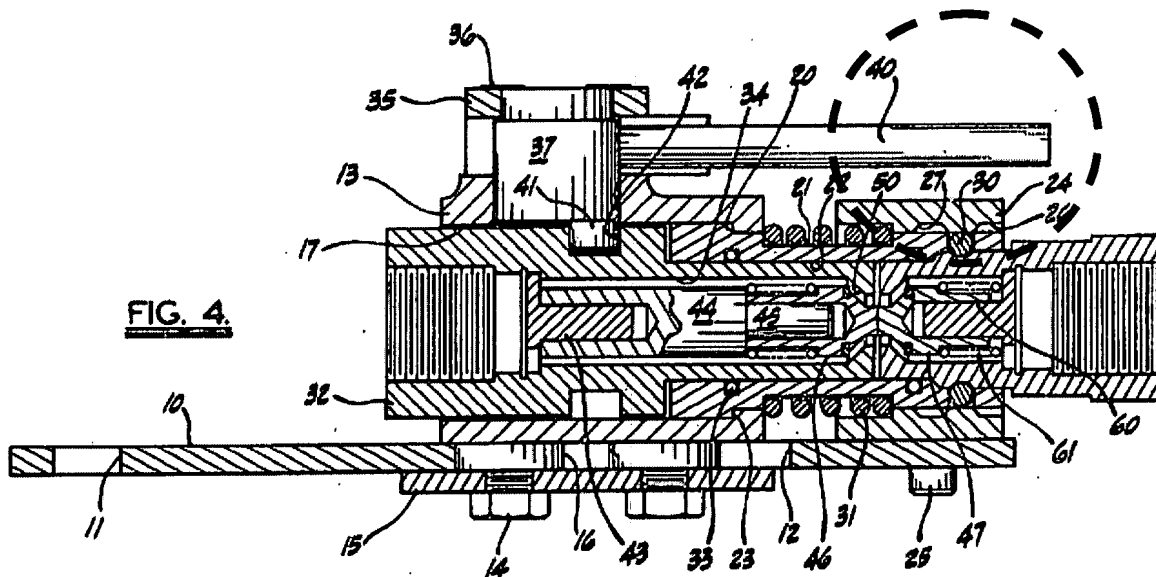
B. Ground 2

Appellant submits that the rejection of claims 7-10 and 12 as anticipated under 35 U.S.C. §102(b) by Hobson et al. (U.S. Pat. No. 4,074,698) should be withdrawn.

Claim 7:

Claim 7 was also rejected under 35 U.S.C. §102(b) as anticipated by U.S. Pat. No. 4,074,698 ("Hobson"). Appellant appeals the rejection of Claim 7 because Hobson does not teach or suggest the limitations of Claim 7.

As discussed above, claim 7 relates to a female coupler adapted to be connected to a male coupler. The Examiner merely cites Figures 1-4 of Hobson as teaching every limitation in claim 7. Figure 4 of the Hobson reference (with an addition to highlight certain elements) is reproduced below:



Similar to Rogers, Hobson fails to teach or suggest a holding member for engaging with and holding the outer movable member to the unlocking position. Hobson teaches a collar 24 that serves as locking element. Collar 24 is stationary and therefore does not need any "holding member" to secure the collar 24 to an unlocking position. See col. 3, lines 15-17 ("A releasable means includes a collar 24 constituting a first locking element, fixed to the mounting plate 10 by a threaded cap screw 25.")

Appellant argued to the Examiner that Hobson failed to disclose any holding member. In response, the Examiner only states that "In . . . Figures 1-4 of Hobson, the securing or holding element is clearly illustrated." The Examiner does not provide any

additional support. Appellant thus contend that the holding member is not taught or suggested by Hobson.

Hobson also fails to teach or suggest “a handle fixedly connected to said outer movable member.” The Hobson reference teaches a handle 40 attached to and used to rotate cam cylinder 37 in order to engage locking balls 30 into groove 27. However, the handle 40 is not fixedly connected to any element that may be interpreted as the outer movable member. Accordingly, Appellant respectfully requests the rejection of claim 7 based on Hobson to be withdrawn.

Claim 8:

Claim 8 was also rejected under 35 U.S.C. §102(b) as anticipated by Hobson. Appellant appeals the rejection of Claim 8 because Hobson does not teach or suggest the limitations of Claim 8. The Examiner merely cites Figures 1-4 of Hobson as teaching every limitation in claim 8. However, Hobson does not disclose or suggest the inner movable member, axially movable between an advanced position (that engages with the locking member to hold the locking member in the disengagement position) and a retracted position (that allows the locking member to move to the engagement position). Accordingly, Appellant respectfully requests the rejection of claim 8 based on Hobson to be withdrawn.

Claim 9:

Claim 9 was also rejected under 35 U.S.C. §102(b) as anticipated by Hobson. Appellant appeals the rejection of Claim 9 because Hobson does not teach or suggest the limitations of Claim 9. Again, the Examiner merely cites Figures 1-4 of Hobson as teaching every limitation in claim 9. However, Hobson fails to teach any recess on any sleeve, that receives any locking member when the sleeve is located in the unlocking position. Accordingly, Appellant respectfully requests the rejection of claim 9 based on Hobson to be withdrawn.

Claim 10:

Claim 10 was also rejected under 35 U.S.C. §102(b) as anticipated by Hobson. Appellant appeals the rejection of Claim 10 because Hobson does not teach or suggest

the limitations of Claim 10. Yet again, the Examiner merely cites Figures 1-4 of Hobson as teaching every limitation in claim 10. However, Hobson fails to teach either: (1) an inner movable member movable between a retracted position (for receiving the locking member) and an advanced position; or (2) a first urging member for urging the inner movable member to the advanced position. Accordingly, Appellant respectfully requests the rejection of claim 10 based on Hobson to be withdrawn.

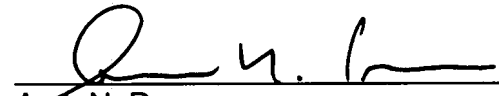
Claim 12:

In addition to possessing the features of independent claim 7, claim 12 further recites the handle comprising "a pair of grip members separated from each other in the transverse direction of the female coupler, positioned at the rearward of the female coupler and connected to opposite lateral sides of said outer movable member." The Examiner cites Figures 1-4 and handle 40 in Hobson as teaching every limitation in claim 12. However, Hobson fails to teach that handle 40 is "connected to opposite lateral sides of said outer movable member." Instead, "handle 40 is attached to the cam cylinder 37, and is adapted to rotate the cylinder." Col. 3, lines 61-62. Accordingly, Appellant respectfully requests the rejection of claim 12 based on Hobson to be withdrawn.

Conclusion

Appellant respectfully submits that the inventions defined in claims 7-10 and 12 are patentable in view of any combination of the cited references. Appellant therefore requests reversal of all of the pending rejections asserted in the Final Office Action.

Respectfully submitted,


Amir N. Penn
Registration No. 40,767
Attorney for Appellant

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

Claim Appendix – Claims appealed: 7-10 and 12

7. A female coupler adapted to be connected to a male coupler comprising:

a coupler body having a cylindrical male coupler receiving portion adapted to receive a male coupler therein, and a fluid passage to be fluidly communicated with a fluid passage of the male coupler which has been received in said cylindrical male coupler receiving portion, said cylindrical male coupler receiving portion having a radial hole;

a locking member disposed in said radial hole and movable between

an engagement position wherein said locking member engages with a locking member receiving recess formed on the outer surface of the male coupler which has been inserted into said cylindrical male coupler receiving portion to thereby prevent the male coupler from being disengaged or moving out from said cylindrical male coupler receiving portion, and

a disengagement position wherein said locking member is positioned radially outwardly relative to said engagement position and disengages from the locking member receiving recess of the male coupler to thereby allow the male coupler to move out from said cylindrical male coupler receiving portion;

an outer movable member mounted on said cylindrical male coupler receiving portion, said outer movable member being axially movable between

a locking position wherein said outer movable member urges said locking member to said engagement position, and

an unlocking position wherein said outer movable member allows said locking member to move to said disengagement position;

a handle fixedly connected to said outer movable member, said handle enabling an operator to hold said female coupler by grasping said handle for coupling said female coupler with the male coupler; and,

a holding member for engaging with and holding said outer movable member to said unlocking position, said holding member being disengaged from said outer movable member to allow said outer movable member to move to said locking position when the male coupler has been inserted into said cylindrical male coupler receiving portion and reached a position wherein the locking member receiving recess is located at an axial position for receiving said locking member;

said cylindrical male coupler receiving portion being engaged by and prevented by the male coupler from effecting a further advancement when the male coupler has been inserted into said cylindrical male coupler receiving portion upon advancement of said female coupler towards the male coupler and reached a position wherein the locking member receiving recess is located at an axial position for receiving said locking member.

8. A female coupler as set forth in claim 7 further comprising:

an inner movable member disposed in said cylindrical male coupler receiving portion, said inner movable member being axially movable between

an advanced position wherein said inner movable member engages with said locking member to hold said locking member in said disengagement position, and

a retracted position for allowing said locking member to move to said engagement position; and,

a first urging member for urging said inner movable member towards said advanced position;

said locking member functioning as said holding member in such a manner that said locking member holds said outer movable member at said unlocking position when said locking member is located at said disengagement position and allows said outer movable member to said locking position when said locking member is located at said engagement position.

9. A female coupler as set forth in claim 8 wherein:

said outer movable member is cylindrical and coaxial with said cylindrical male coupler receiving portion and has an interior surface slidably engaged with an exterior surface of said cylindrical male coupler receiving portion, said interior surface having a locking portion urging said locking member to said engagement position when said outer movable member is located at said locking position and a recess for receiving said locking member when said outer movable member is located at said unlocking position.

10. A female coupler as set forth in claim 7 further comprising:

an inner movable member disposed in said cylindrical male coupler receiving portion, said inner movable member being axially movable between

a retracted position wherein said inner movable member has been moved rearwards by the male coupler which has been inserted into said cylindrical male coupler receiving portion so that said locking member receiving recess thereof has been moved to an axial position for receiving said locking member therein; and,

an advanced position closer to said locking member than said retracted position;

a first urging member for urging said inner movable member towards said advanced position;

said inner movable member urging said securing member radially outwards to make the securing member engaged with and securing said outer movable member at said unlocking position, and allowing said outer movable member to move to said locking position when said inner movable member has been moved to said retracted position by the male coupler.

12. A female coupler as set forth in claim 7 wherein:

said handle comprises a pair of grip members, separated from each other in the transverse direction of the female coupler, positioned at the rearward of the female coupler and connected to opposite lateral sides of said outer movable member.

Evidence Appendix

The Appellant has not submitted any evidence under 37 CFR §1.130, 1.131, or 1.132, nor has the Examiner entered any evidence on which the Appellant relies. Therefore, no copies of such evidence are submitted.

Related Proceedings Appendix

The Appellant does not know of any related appeals or interferences. Therefore, no copies of decisions in any such proceedings are submitted.